## Troubleshooting

The most important principle in troubleshooting the SMART System$^5$ is to check each component of the system separately and trace any malfunction to its source.

Verify each of these factors:

- Balance Calibration
- Microwave Power Measurement
- Standard Solution Test
- Analytical Method (verify analysis method) – If necessary, contact the CEM Applications Department or the nearest subsidiary or distributor.

A qualified service technician, using standard troubleshooting techniques, should be able to identify and resolve operational problems. If a problem persists, call the CEM Service Department or the nearest subsidiary or distributor.

Troubleshooting Guide

| Symptom | Possible Cause/Remedy |
|---|---|
| Instrument Inoperative | Ensure that instrument is properly connected to power outlet and that the power switch is in the "on" position. Check fuses and replace if necessary. |
| Balance Will Not Tare | Balance overloaded. Use less sample. |
| Balance Not Operating | Ensure that balance stem is installed and centered. |
| No Microwave Drying | Instrument cover not closed and latched properly. Check dual voltage supply and fuses (10A fuses for 60 Hz and 5A for 50 Hz) and correct dual voltage supply and/or replace fuses, if required. |
| Sample Burning | Sample too large and/or unevenly applied to pad. Sample not homogeneous. Sample not positioned under temperature sensor. Power level too high. |
| Results Not Reproducible | Sample applied unevenly to pad. Sample not homogeneous and absorbs microwaves unevenly. Keep sample container closed when not extracting sample. Work quickly when applying sample to pads and placing pads on balance pan. |
| Incorrect Results | Verify proper sample handling, spread techniques and method parameters. |
| "Data Results Invalid" Displayed at End of Test | Final weight greater than initial weight. Repeat test. Check balance calibration. |
| "Cover Open" Message | Ensure that the instrument cover is properly closed. |
| Low Power | Check for faulty relay and replace if required. |
| Improper Heating | Ensure that the air shield is installed and not clogged. |
| Discoloration or Oil Buildup on Air Shield | Replace the air shield. |

Troubleshooting Guide

| Symptom | Possible Cause/Remedy |
|---|---|
| Balance Over Load Error | Weight on balance is too large to be recognized by balance. |
| Balance Under Load Error | Weight on balance is too small to be recognized by balance. |
| Thermal Overload Error | Ensure that instrument cover is closed properly. Ensure that switches on all three interlocks are adjusted properly. |
| Fuses Blow | Check dual voltage supply and fuses (10A fuses for 60 Hz and 5A for 50 Hz) and correct dual voltage supply and/or replace fuses, if required. |
| Balance Error | Balance stem not installed. Turn instrument off, install balance stem and turn instrument on. Ensure that instrument is located on a stable work surface.<br>Balance cable not installed. Properly install cable.<br>Balance not calibrated. Perform calibration using 10g or 50g weight. |
| Instrument Will Not Calibrate | Instrument turned on before balance stem and pan were installed. Turn instrument off, install stem and pan, and turn instrument on. |
| Unstable Balance Readings | Faulty balance. Contact CEM Service. |
| Balance Displays Incorrect Weight | Faulty balance. Contact CEM Service. |
| IR Reads Negative Number(s) | Faulty IR sensor. Contact CEM Service. |
| Instrument Top Cover Difficult to Close or Noisy when Opened | Gas spring installed improperly or faulty gas spring. Contact CEM Service. |
| Garbled Display | Cold start instrument. Contact CEM Service. |
| Intermittent “clicking” when Microwaves On | Arcing at microwave waveguide slot. Contact CEM Service. |